



# EXPENDABLE GUIDED DROPSONDE

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Latitude Engineering, LLC  
Phase I Final Report  
September 29, 2011

NASA Contract NNX11CD70P

## SUMMARY

### Identification of the Purpose of the Research:

Given the constraints associated with current airborne host platforms, a technological solution is needed for efficiently obtaining meteorological data at targeted locations and altitudes. Guided dropsondes are a promising and achievable path forward for meeting this need. This new technology has significant implications to advance research in nearly all scientific disciplines requiring in situ atmospheric measurements. The guided dropsonde's ability to move to targeted areas of interest gains sensors an unprecedented level of access to extreme areas and events. Being able to move to a designated area will also offer the potential to retrieve the guided dropsonde, enabling in situ sampling. For volcanic eruptions or pollution studies, this can become a powerful new tool where few options, if any, currently exist.

### Phase I Results

Latitude successfully designed, prototyped and tested the key elements of the Advanced Guided Dropsonde (AGD), accomplishing the objectives outlined in the Phase I proposal; the customized guidance system and the dropsonde airframe were designed, built and flight tested. A prototype of the deploying wing and tail mechanics were also designed, built, and tested.

### Phase II

The Phase I effort successfully demonstrated the feasibility of the Advanced Guided Dropsonde by prototyping, building, and testing the key components. Based upon the positive results achieved throughout the Phase I effort, and the potential applications of continuing research and development of the AGD, Phase II continuation is a viable next step.